Self-Other Differences in Perceptions of Wealth

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Abstract

People evaluate their own wealth differently from how they evaluate the wealth of others. Across six experiments, we find evidence that people focus disproportionately on debt when thinking about their own (vs. another person's) wealth. In Experiments 1-3, participants predicted how wealthy they or someone else would be in one year, assuming they had the same amount in assets and debt today. While participants were generally optimistic about the future, they believed debt would shrink faster for themselves than for others. Participants focused more on paying down debt than growing assets when thinking about their own wealth. Further, when asked to consider what they would do with a windfall, they allocated more towards repaying debt than they believed others would. In Experiments 4 and 5, participants assessed their own wealth or that of another person after purchasing a car or a house and borrowing to do so. In every case, participants considered others (vs. oneself) as better off financially when holding the price and amount borrowed constant. As debt increased, the gap between self and others widened. In Experiment 6, a separate group of participants also reported their beliefs about how others might see them. When actively considering another person's perspective, people saw themselves as wealthier. We conclude by discussing the role that different evaluations of wealth might play in patterns of conspicuous consumption.

Keywords: prediction, conspicuous consumption, household debt, self-other differences, self perception, social perception, social comparison, self-construal

Self-Other Differences in Perceptions of Wealth

Introduction

Picture a colleague driving into work with a brand-new luxury car. Seeing the shiny rims and the leather seats, you might be left feeling a bit of envy, wishing you were as wealthy as them. After all, consumption tends to signal greater wealth (Veblen, 1899). But then try to imagine yourself with that new car. Assuming you do not already own one, what would it take for you to arrive at work tomorrow with the exact same model? It may become apparent that expensive cars often come with hefty car loans. Together, these observations reveal something basic about how people perceive their fortunes when compared to others'. Debt appears to be more prominent in a person's evaluation of their own wealth relative to others' wealth.

This paper examines how people evaluate their wealth in contrast to how they assess the wealth of others. Differences in how people think about assets and debts for themselves and others shape how they plan for the future and how they perceive consumption today. In particular, people focus on their debt more than they believe others do when judging wealth. Focusing on debt when thinking of one's finances leaves people more motivated to pay off what they owe while also feeling worse than their peers today. In brief, these self-other differences shape both future beliefs and present assessments of one's own wealth relative to others.

Across six experiments, we find evidence that people tend to focus more on debt when thinking of themselves than others, despite being provided with complete information about assets and debt. First, people predict they will be wealthier than others in the future (Exp 1-3). Beliefs that one's own debt will shrink more than others' largely drive this difference. Second, when asked to expand on their predictions, people more frequently referred to paying down debt (vs. growing assets) when thinking of their own strategies than when thinking of others' (Exp 2). Third, people appear more motivated to repay their debt than they believe their peers are, allocating more of a hypothetical windfall to their debt than they think others would (Exp 3). Fourth, when presented with information about a recent purchase, participants imagined others would feel wealthier, even controlling for the price of the good and the amount used to finance it

(Exp 4-6). This suggests that not only does focusing on debt impact how people plan for the future, it also shapes perceptions of present consumption. Finally, participants appear to implicitly recognize the gap between self and others, weighing their own debt less when asked to consider their own situation from another person's point of view (Exp 6).

One's wealth (i.e., net worth) is determined objectively by their assets minus whatever debt they owe. Still, how wealthy a person is *perceived* to be is more malleable. Perceptions tend to be shaped by what draws the perceiver's attention (Morewedge et al., 2007; Sussman & Shafir, 2012; Thaler, 1999). Whether assets or debts stand out as a signal of wealth depends on whether total net worth is positive or negative (Sussman & Shafir, 2012). For example, two people could be equally wealthy with the same positive net worth, but the person with less debt will be perceived as wealthier. Furthermore, how wealthy one perceives themselves to be can affect subsequent spending decisions (De La Rosa & Tully, 2020; Sussman & Shafir, 2012).

Nevertheless, research in this area has tended to separately examine questions about one's perception of themselves or others. The following section reviews the literature on self-other differences, suggesting that a closer examination of wealth perceptions along this dimension is warranted.

Self-Other Differences

People tend to believe that others "have more money" and "have more disposable income" (Matthews et al., 2016) than they themselves do and that this leaves others willing to pay more for everyday items than they would themselves (Frederick, 2012).[1] What remains unclear is whether people perceive others' wealth differently than their own, even after holding constant the target's (self; other) assets and debts.

Researchers have long examined gaps in self-other perceptions (e.g., Brown & Gallagher, 1992; Feather & Simon, 1971). Early accounts of self-other differences attributed these discrepancies to asymmetric information or informational disparities (e.g., Kuiper & Rogers,

[1] Galesic, Olsson, and Rieskamp (2012) and Dawtry, Sutton, and Sibley (2015) offer evidence that is largely in support of this, and suggest social sampling may play a role.

1979; Prentice, 1990; Ross & Sicoly, 1979). For example, in Ross and Sicoly's (1979) studies, participants were ready to assume more responsibility on a project or in a game than others gave them credit for. An effect that diminished when others' contributions were made more salient.

Nevertheless, even when others are on equal footing to oneself in terms of information provided, attentional biases may lead to a gap in perceptions. In other words, people attend to different features when evaluating their own situation versus that of others. For example, Williams and Gilovich (2012, Study 3) show that people rely on their own peak performance when predicting how they will do on a future exam. However, people instead rely on an average of past performances when predicting how others will do. In another set of papers, Kahneman and colleagues (Kahneman, 2006; Schkade & Kahneman, 1998) argue that differential attention — which they term a "focusing illusion" — leads people to believe that certain features are more important in others' lives than their own. Consistent with literature on goal-directed attention, differences in goals for the self versus others may contribute to this differential attention (e.g., Corbetta & Shulman, 2002). For example, a given individual's motivation to maximize their own outcomes in comparison to another person's could shift both attention and subsequent actions. In this paper, we home in on differential attention as a contributing factor to self-other differences in perceptions of wealth.

In this paper, we seek to explore whether self-other differences extend to how people evaluate wealth::

> **Hypothesis 1.** Holding information about assets and debt constant, people will evaluate wealth differently for self versus others. They may either (a) focus on their successes (i.e., assets) more than the successes of others or (b) focus on their hardships (i.e., debt) more than the hardships of others.

Earlier research provides competing predictions about what features one might attend to for the self versus others. On one hand, the work by Williams et al. (2012), mentioned above, suggests that people might focus on different components of wealth for self versus others. If people overweight appealing features, such as one's assets, for themselves, they may perceive

themselves to be better off financially than others. This finding would be largely consistent with literature on "better-than-average" effects (for a recent review, see Zell et al., 2020). This literature would suggest that, to the extent people perceive their own wealth differently than others, people would consider themselves as better off, corresponding to Hypothesis 1a.

On the other hand, more recent work has highlighted a tendency for people to focus on their own effort and obstacles while overlooking those of others (e.g., Davidai & Gilovich, 2016; Kruger & Savitsky, 2009; Schroeder et al., 2016). For example, when people are explicitly asked about challenges, they can more quickly recall obstacles in their own life while often failing to recognize the struggles of others (Davidai & Gilovich, 2016). From this perspective, people might overweight debt for themselves more than they do for others, causing them to see others as financially better off even at similar levels of assets and debt. This pattern would correspond to Hypothesis 1b.

Furthermore, we anticipate that a differential focus, consistent with either Hypothesis 1a or 1b is likely to have downstream consequences for perceptions and behaviors. For example, if people focus more on their assets than their debts, they may neglect outstanding balances (and the accompanying interest rates) when thinking about their future wealth. Conversely, if debt is more salient when thinking about one's own wealth versus others', one might see themselves as worse off financially, even at similar levels of wealth. Therefore, contingent on finding evidence in support of Hypothesis 1a or 1b, we propose:

> **Hypothesis 2.** Differences in how people think about assets and debts for themselves versus others will influence both how people plan for the future and how they perceive current consumption.

Social Components of Wealth Perception

People care about where they stand relative to others (e.g., Frank, 1985; Hagerty, 2000; Walasek & Brown, 2015, 2016). When it comes to finances, people want to be wealthier than their peers (Bottan & Perez-Truglia, 2020; Boyce et al., 2010; Perez-Truglia, 2020). They also

want to be *perceived* as wealthier than their peers (e.g., Charles et al., 2009; Clingingsmith & Sheremeta, 2018; Han et al., 2010; Wilcox et al., 2009). Wealth itself, however, is not easily observed. People instead rely on consumption (e.g., Charles et al., 2009; Ordabayeva et al., 2022; Veblen, 1899) to signal their own wealth and infer the wealth of others. Yet, people increasingly consume using borrowed money (Bricker et al., 2017). [2] While consumption is conspicuous, borrowing is not (Georgarakos et al., 2014).

When spending requires borrowing, people may find themselves torn between two images: their social image and their self-image. *Social image* is the image others have of the target individual or, from the target's perspective, the image they believe others have of them. In the latter sense, social image is a belief about beliefs, or a second-order belief. Concerns about social image affect many behaviors, including voting, effort in the workplace, engagement in the classroom, and investment decisions (for review, see Bursztyn & Jensen, 2017). People may, therefore, choose to consume using borrowed money to keep up social appearances. Conspicuous consumption through inconspicuous debt creates a rather perverse incentive to "keep up with the Joneses" on credit. Research by Georgarakos, Haliassos, and Pasini (2014) shows that social image concerns lead to borrowing and an increased chance of ending up financially distressed.

In contrast, one's *self-image*, or personal identity, is the image one has when they thinks of themselves (Oyserman et al., 2011). Self-image can include personal traits, characteristics, and goals, often decontextualized of one's social role (Oyserman, 2009). People often come to know themselves partly by observing their own circumstances (Bem, 1972). What one possesses can be a source from which one's self-image is both constructed (Ahuvia, 2005; Belk, 1988) and projected (Berger & Heath, 2007). One's assets can, therefore, bolster one's self-image. Nevertheless, assets acquired through borrowing can leave people feeling inauthentic (for related work, see Goor et al., 2020).

Social-image and self-image can often complement each other. Sivanathan and

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[2] Bricker et al. (2017) note that though the proportion of households with debt has increased, the debt burden per household has generally decreased.

colleagues, for example, find that individuals experiencing threats to their self-image were more likely to seek high-status goods (Sivanathan & Pettit, 2010) and less likely to seek out low-status goods (Pan et al., 2014). Conversely, Bursztyn and colleagues (2018) provide experimental evidence that a boost in self-esteem reduces demand for status goods.

Despite being averse to debt (e.g., Amar et al., 2011; Gal & McShane, 2012; Prelec & Loewenstein, 1998), people may choose to borrow as a means to keep up social appearances (Georgarakos et al., 2014) and alleviate threats to self-image (Pettit & Sivanathan, 2011). Yet, over time debt can also leave people feeling worse off (Greenberg & Mogilner, 2021). Debt, therefore, introduces a wedge between how one sees themselves and how they imagine others see them, suggesting a third hypothesis:

> **Hypothesis 3.** People will evaluate their own wealth differently when considering their self-image versus their social image. They may either (a) focus on their successes (i.e., assets) more when considering their self-image than when considering their social image or (b) focus on their hardships (i.e., debt) more when considering their self-image than when considering their social image.

This paper attempts to bridge these streams of research, exploring self-other differences in how wealth is perceived and the role these differences play in social interactions.

Overview of Current Research

This article reports the results of six studies that examined self-other differences in perceptions of wealth. Across all of our studies, we investigate whether people evaluate wealth differently for the self versus others, holding constant information about assets and debt. In every study, whether asking about the self or someone else, we present participants with complete information regarding wealth (i.e., assets and debt). Our study materials, pre-registrations, data, and code are available on the Open Science Framework (osf.io/3q8tn. For all studies, we exclude from the analysis participants who did not complete the surveys in their entirety. We report all measures, manipulations, and exclusions.

In Experiment 1, we examined people's expectations for the future while holding current wealth constant for self and others. Participants appeared to think of wealth differently for themselves versus others, imagining different futures for themselves than for others when provided with present-day assets and debts. Specifically, participants believed that their debt would shrink more than other people's over one year. Since this belief about debts was not offset by an equivalent difference in beliefs about assets, it corresponded to predictions that people would be wealthier in the future than they expected others to be. In Experiment 2, we investigated the origins of these expectations by analyzing participants' text responses. Participants tended to focus on paying off debt for themselves and growing assets for others. In Experiment 3, we tested for motivational differences by asking participants to allocate a windfall gain either towards repaying debt or growing assets. Participants allocated more money towards repaying the debt when considering the self than thinking of others.

If a focus on debt shapes how people plan for the future, it may also affect how they perceive their wealth today. Experiments 4 and 5 explored how focusing on debt might shape perceptions of overall wealth for self and others when provided with full information about a large purchase. We varied the price of a house and car and the debt used to finance the purchase. Perceptions of wealth for the self were primarily shaped by the relative amount of debt, with less weight placed on the product's price. In contrast, others' wealth was evaluated based on both debt and the asset's price. In Experiment 6, we replicated the findings of Experiments 4 and 5 while adding a third condition, which asked participants to consider how others might see them. Perceptions of wealth moved differently when thinking about others' judgments. When asked to evaluate their wealth from another person's point of view, they rated themselves as wealthier across the different debt levels. To the extent that people care about how others come to judge them, these differences introduce a conflict between one's self-image and their social image. Furthermore, people see others' differently from how they imagine others are seeing them.

Experiment 1

Experiment 1 investigated beliefs about future wealth. Specifically, it varied present assets and debts and asked participants to imagine how wealthy they expected themselves or someone else to be in a year. The study asked about, and included variation in, assets and debts because previous research suggests the makeup of wealth shapes perceptions of wealth (Sussman & Shafir, 2012). What remained unclear is whether these perceptions differed when thinking about the self versus another person. Experiment 1 examined these differences by peering into beliefs about how wealth changes over time.

Method

Participants

495 participants (202 women, 293 men, age: M = 34.9, SD = 10.1) completed the experiment, which was approved by the Institutional Review Board at a Midwestern University. Participants were recruited via Amazon Mechanical Turk using the TurkPrime platform (Litman et al., 2017, precursor to the CloudResearch platform) in March 2019 with the intent of having approximately 125 participants per condition, prior to exclusions. The experiment had four between-participant conditions. The sample size was based on similar studies where participants generated predictions about future assets and debts (Trueblood & Sussman, 2021). The sample size was determined prior to starting recruitment and the data was analyzed only after all data had been collected. Participants were paid $1.00 for completing the experiment, which took an average of 13.9 minutes to complete.

Materials

The experiment had a 2 (between: self vs. other) by 2 (between: positive vs. negative net worth) by 2 (within: small vs. large asset size) mixed design. The stimuli consisted of 40 wealth profiles, which made explicit the total amount of assets and debts (Sussman & Shafir, 2012; Trueblood & Sussman, 2021). Of the 40 profiles, 20 were of positive net worth and 20 were of

negative net worth. Participants were presented either the positive or negative set, depending on their assigned condition. Within each of the two sets, half of the profiles had relatively small assets and debts (e.g., assets = $2,500 and debt = $1,300 in the positive net worth set) and the rest had relatively large amounts in assets and debts (e.g., assets = $323,440 and debts = $100,000 in the positive net worth set). A complete list of the wealth profiles used in this experiment are in the Supplementary Materials.

To provide participants with realistic wealth profiles, we generated the 40 profiles used in the experiment from asset and debt amounts calculated from the Panel Study of Income Dynamics (PSID; *Panel Study of Income Dynamics*, 2019). The PSID is a longitudinal panel survey of American families that measures a number of different factors including wealth, income, health, employment, and many more topics. The PSID conducts their main interview every two years. We used data from the 2013 PSID survey to generate the profiles. First we calculated the total amount of assets and debts for the PSID respondents. The PSID has seven questions relating to assets, asking people to report the value of their checking and savings accounts, business/farm assets, vehicles, stocks, annuity/IRA, other real estate assets, and other assets. There are eight questions relating to debt, which ask people to report their debt related to credit cards, business/farm, medical debt, student loans, legal debt, family loans, other real estate, and other debt. We also included home equity, that is, home value minus mortgage, in our calculations. Next, based on our calculations of respondents' assets and debts, we calculated their total net worth and defined "small profiles" to be between the 0.05 and .25 quantiles of the net worth distribution. Likewise, we defined "large profiles" to be between the 0.75 and 0.95 quantiles of the net worth distribution. We calculated the quantiles separately for positive and negative net worth profiles. We then randomly selected 10 respondents who had positive net worth and "small profiles", 10 respondents who had positive net worth and "large profiles", 10 respondents who had negative net worth and "small profiles", and 10 respondents who had negative net worth and "large profiles". This generated our set of 40 profiles for the experiment.

Procedure

At the start of the experiment, participants were randomly assigned to one of four conditions in a 2 (Self; Other) by 2 (Positive; Negative Net Worth), between-participants design. Participants were told that they would be shown a financial profile — either another individual's or, hypothetically, their own — and that their task would be to predict what the financial situation would look like in one year. They were told that they would be asked to provide an estimate for both future assets and future debt. In the "other" condition, participants were told that they would see a different individual on each trial. Once participants read the instructions, they were asked to complete a guided practice. As part of the guided practice, participants were instructed to type a number into the text box provided. This was done to ensure participants knew not to include dollar figures or special characters and that all responses should be in terms of absolute value, so that no negative symbols were used for debts. Upon completing the guided practice, participants were each presented with 20 profiles in random order. Altogether, each participant reviewed 10 *small* profiles and 10 *large* profiles. For example, a participant might have been asked to "Imagine that [you have / Mr. G has] $2,500 in assets and $1,300 in debt." For each profile, participants were then asked to predict how much they (or this other person) would have in assets and in debt in one year; specifically, "In 1 year, what do you estimate [your / Mr. G's] assets will be?" and "In 1 year, what do you estimate [your / Mr. G's] debt will be?" Respondents were free to write in any numeric value between 0 and 4,000,000 for assets and between 0 and 400,000 for debts. The upper bounds for the text boxes were set based on the .99 quantile of the PSID data. In the 'other' condition, the names of the individuals were different on each trial and followed the format "Mr. G" where "G" was a single letter.[3]

Once participants completed the responses for each of the 20 profiles, they were asked to report on their actual financial situation and about their demographics. For example, participants were asked how wealthy they felt, how much money they believed they could come up with in

[3] In Experiments 1 and 2 and 4, "Mr." was always used; Experiments 3, 5, and 6 had half the profiles referring to "Mr." and half referring to "Ms."

case of an emergency, and a set of questions assessing financial literacy (Lusardi & Mitchell, 2008) and their propensity to take on risk in the domains of gains and losses. [4]

Results

We excluded participants who failed an attention check or had multiple outlier predictions. We followed the exclusion criterion from Trueblood and Sussman (2021) where participants were excluded if they had 10 out of 40 responses (or 25%) that were three scaled median absolute deviations away from the median response for a given question (Leys et al., 2013). Exclusions were necessary because the text box response mode resulted in very noisy data as participants could enter almost any number they wished. This removed 113 participants, leaving 382 for the data analyses. The Supplemental Materials includes an additional table where we estimate similar models without any exclusions and controlling for participant demographics; the results are consistent with those reported here.

First, we examined whether participants' future predictions were generally larger or smaller than the stated present values using Wilcoxon signed rank tests. For assets in positive net worth profiles, participants' predictions were larger than present values for both self (Z = 18.47, $p < .001$) and other (Z = 16.87, $p < .001$). This was also true for assets in the negative net worth profiles for both self (Z = 13.11, $p < .001$) and other (Z = 13.62, $p < .001$). For debts in the positive profiles, participants' predictions were generally smaller than present values for both self (Z = -23.09, $p < .001$) and other (Z = -14.35, $p < .001$). This also held for debts in the negative profiles for both self (Z = -16.11, $p < .001$) and other (Z = -2.26, $p = .024$). Thus, participants were generally optimistic about the future for both self and other, thinking that assets would grow and debts would shrink over the course of one year.

To further investigate participants' predictions about the future value of assets and debts,

[4] We had no specific plan for analyzing these variables and therefore do not report them in our main analysis. However, we describe them here for transparency (e.g. Simmons et al., 2011, p. 1363). Material and data can be found on the OSF page linked above.

we calculated the growth rate for assets and debts for each profile separately:

$$\text{growth rate} = \frac{\text{Future Value - Present Value}}{\text{Present Value}} \tag{1}$$

where "Present Value" is the given asset or debt amount and "Future Value" is the participant's prediction. Figure 1 shows the growth rates for different types of profiles for participants in the self and other conditions.

Figure 1

Experiment 1 results: The panels show the mean of the median growth rates for assets and shrinkage rates for debts for different types of profiles along with error bars equivalent to two standard errors. Median growth rates were calculated at the individual level for assets and debts, separately for the small and large profiles. The median was used at the individual level to handle outlier estimates.

To examine how growth rates varied by the characteristics of the wealth profiles and self versus other framing, we fit two robust linear mixed-effects models to the growth rates for assets

and debts separately with three fixed effects: self-other (reference level = "self"), asset amount (in dollars), and debt amount (in dollars).[5] We allowed for by-subject random intercepts. Robust regression was used because the asset growth rates were heteroscedastic as determined by Levene's test for equality of variances ($p < .001$). We note that the assumption of equal variances did hold for debt growth rates (Levene's test with p = 0.646); however, for consistency we used robust regression for the debt growth rates as well. Robust regression was performed in R using the "robustlmm" package (Koller, 2016, 2021).

Results from the two regressions are shown in Table 1. For the asset growth rates, both the value of assets and debts were significant predictors of participants' growth rates. In particular, participants' growth rates were higher for small asset and debt values (assets: b_{Assets} = -.00002, t = -2.333, $p = .020$; debt: b_{Debt} = -.0006, t = -14.597, $p < .001$), implying small profiles were predicted to grow faster than large profiles. However, self-other was not a significant factor (b_{Other} = -.022, t = -1.522, $p = .129$) for asset growth rates.

For the debt growth rates, all three predictors were significant. In this case, growth rates were negative, which implies shrinking. Participants predicted debts would shrink faster for profiles with large assets than small ones (b_{Assets}) = -.0001, t = -9.716, $p < .001$). They also predicted that debts would shrink faster for profiles with small debts than large debts (b_{Debt} = .001, t = 24.782, $p < 0.001$). Importantly, unlike the asset growth rates, self-other was a significant predictor of debt growth rates (b_{Other} = .103, t = 3.718, $p < .001$). Participants in the "self" condition predicted debts would shrink faster than participants in the "other" condition.

Discussion

Results from Experiment 1 show that people are generally optimistic about the future, believing that assets will grow and debts will shrink for themselves and others. This optimistic view of the future holds for both positive and negative net worth profiles. While people made similar directional predictions for themselves and others, they tended to predict that their own

[5] In estimating the regressions we divided the asset and dollar amount by 1000

Table 1

Exp 1: Coefficients of robust linear mixed effects regression models of asset and debt growth rates

	Dependent variable:	
	Asset Growth Rate	Debt Growth Rate
	(1)	(2)
Constant	.117***	−.240***
	p = .000	p = .000
Other Condition	−.022	.103***
	p = .129	p = .000
Assets	−0.00002*	−0.0001***
	p = .020	p = .000
Debt	−.0006***	.001***
	p = .000	p = .000
Observations	7,640	7,640
R^2 Marginal	.030	.058
R^2 Conditional	.369	.601
Note:	*p<.05; **p<.01; ***p<.001	

debt would shrink faster than someone else's. However, there were no significant differences in predictions regarding assets. This evidence is consistent with the hypothesis that people evaluate wealth differently for the self versus others, holding constant information about assets and debt. The significant effect for debt but not for assets suggests that people might be focusing on their hardships (i.e., debt) more than the hardships of others.

Experiment 2

Experiment 1 shows that people believe their own debts will shrink faster over the course of one year as compared to the debt of others. But why do people show an asymmetry in their beliefs about future debt when thinking about themselves versus others? Experiment 2 examines this question by asking participants (1) to make predictions about the future value of assets and debts, similar to Experiment 1, and (2) to share in words why they made the predictions they did.

If predictions between self and others differ because people focus more on debt when thinking about themselves, we should see debt repayment as central to their own strategy (versus what they believe others will do).

Method

Participants

501 participants (244 women, 257 men, age: M = 37.0, SD = 11.6) completed the experiment, which was approved by the Institutional Review Board at a Midwestern University. Participants were recruited via Amazon Mechanical Turk using the TurkPrime platform in March 2019 with the intent of having approximately 125 participants per condition, prior to exclusions, and the experiment had four between-participant conditions. Like Experiment 1, the sample size was based on similar studies where participants generated predictions about future assets and debts (Trueblood & Sussman, 2021). The sample size was determined prior to starting recruitment and the data was analyzed only after all data had been collected. Participants were paid $1.00 for completing the experiment which they completed in 9.4 minutes, on average.

Materials

The stimuli consisted of eight wealth profiles (four positive net worth and four negative net worth where two of each were "small" profiles and two were "large" profiles, as above). These wealth profiles were drawn from Experiment 1. The Supplemental Materials includes a list of the profiles used.

Procedure

At the start of the experiment, participants were randomly assigned to one of four conditions in a 2 (Self; Other) by 2 (Positive Net Worth; Negative Net Worth) between-participants design. Each participant saw two of the eight profiles, depending on their assigned condition. The instructions mirrored those in Experiment 1, including a page for guided practice. Participants were told the current asset and debt levels and asked to estimate the asset

and debt levels in one year. Unlike in Experiment 1, participants were provided with a text box after each set of predictions to explain why they made the judgment they made. Specifically, participants were reminded of their forecast, "On the previous question you thought [your / Mr. G's] assets would change from $19,000 to $X" where X was the value they predicted. Then, "In a few sentences, please explain why you made this judgment." Participants were then asked about their debt forecast in a similar format.

Once participants responded to the two wealth profiles, they were asked about their actual financial situation and demographics. Participants were also asked how wealthy they felt, how much money they believed they could come up with in case of an emergency, and to respond to a set of questions assessing financial literacy and their propensity to take on risk.

Results

For the analysis below, participants were excluded if they failed the attention check or responded with two or more extreme predictions (out of four). Specifically, as in Experiment 1, we defined extreme predictions as responses that were three scaled median absolute deviations away from the median response for a given question. 409 participants remained for the data analysis. In the Supplemental Materials, we have included the primary models estimated without any exclusions which show qualitatively similar results.

Similar to Experiment 1, we first examined whether participants' future predictions were larger or smaller than the stated present values. For assets in positive net worth profiles, participants' predictions were larger than present values for both self (Z = 3.42, $p < .001$) and other (Z = 6.04, $p < .001$). This was also true for assets in the negative net worth profiles for both self (Z = 3.32, $p < .001$) and other (Z = 3.11, $p = .002$). For debts in the positive profiles, participants' predictions were smaller than present values for both self (Z = -8.07, $p < .001$) and other (Z = -5.33, $p < .001$). This also held for debts in the negative profiles for self (Z = -7.08, $p < .001$), but not other (Z = -.68, $p = .496$). Thus, participants were generally optimistic about the future for both self and other, except in the case of others' debt with negative net worth.

Next, we calculated the growth rate for assets and debts for each profile separately and fit two robust linear mixed-effects models to the growth rates with three fixed effects: self-other (reference level = "self"), asset amount (in dollars), and debt amount (in dollars). As before, we allowed for by-subject random intercepts. Robust regression was performed in R using the "robustlmm" package (Koller, 2016, 2021).

Results from the two regressions are shown in Table 2. Similar to Experiment 1, we observe that self-other was not a significant factor (b_{Other} = .003, t = .164, $p = .870$) for asset growth rates. However, it was a significant predictor (b_{Other} = .110, t = 5.363, $p < .001$) of debt growth rates. Participants in the "self" condition predicted debts would shrink faster than participants in the "other" condition, replicating Experiment 1.

Table 2

Exp 2: Coefficients of robust linear mixed effects regression models of asset and debt growth rates

	Dependent variable:	
	Asset Growth Rate	Debt Growth Rate
	(1)	(2)
Constant	.107***	−.290***
	p = .000	p = .000
Other Condition	.003	.110***
	p = .870	p = .000
Present Assets	−.0001*	−.0003***
	p = .010	p = .000
Present Debt	−.0008**	.003***
	p = .005	p = .000
Observations	824	824
R^2 Marginal	.028	.119
R^2 Conditional	.028	.119
Note:	*p<.05; **p<.01; ***p<.001	

To analyze the text responses we first partitioned the responses into bigrams and examined frequency counts using a bag-of-n-grams model in Matlab. As shown in Figure 2, bigrams

referring to "paying off" or "paying down" debt were the most frequent, followed by the bigram "increase asset". This suggests that participants were thinking about simple strategies to improve their financial situation when making predictions in the task.

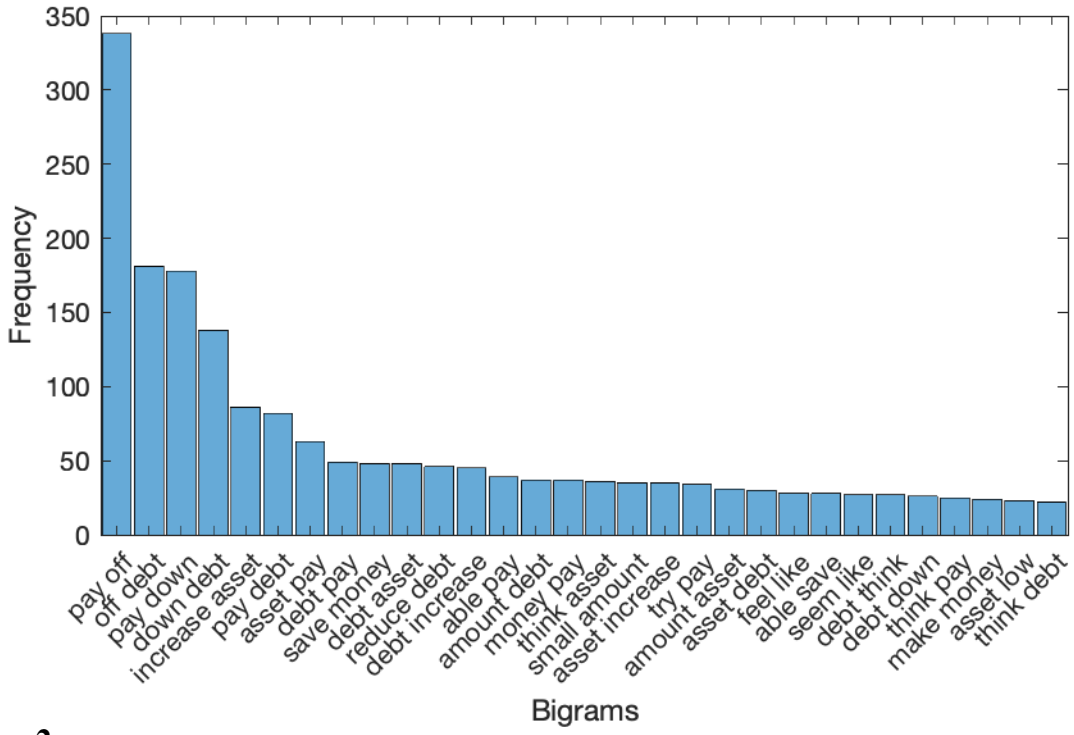

Figure 2

Frequency of the top 30 bigrams mentioned in Experiment 2 across both assets and debts.

Next, using the results from the bag-of-n-grams model, we defined three main strategies (“pay off debt", “pay down debt", and “grow assets") based off of the most frequently mentioned bigrams, shown in Table 3. We treat “pay off debt" and “pay down debt" separately because participants mentioned paying off debts more frequently for positive net worth profiles and paying down debt more frequently for negative net worth profiles (χ^2 = 11.61, $p = .003$). This difference suggests that these terms may represent different strategies to participants. For example, participants may have used “pay off debt" to describe paying off all debt and used "pay down down" to describe paying off part of the debt.

We then combined the two text entries for a single profile for each participant (i.e., combined asset explanation and debt explanation for each profile for each person). After

Table 3
Strategies from text responses in Experiment 2

Strategy	Bigrams
Pay off debt	pay off; off debt; debt off
Pay down debt	pay down; down debt; debt down
Grow Assets	increase asset; asset increase; grow asset; asset grow; save money; make money; able save

combining the text entries, 59.5% of participants mentioned at least one of the three strategies (i.e., mentioned one of the bigrams in the Table 3). Further, most people only mentioned a single strategy (46% of all participants). Using this subset of participants, we analyzed how strategies varied across self / other conditions. We found that participants focused more on repaying debts when thinking about themselves than when thinking about others ($\chi^2 = 15.67, p < .001$). In the self condition, 52.6% of the strategies belonged to the “pay off debt" category, 31.4% of the strategies were from the “pay down debt" category, and 16.0% of the strategies were from the “grow asset" category. In comparison, in the other condition, 40.8% of the strategies belonged to the “pay off debt" category, 25.4% of the strategies were from the “pay down debt" category, and 33.8% of the strategies were from the “grow asset" category. This shows that there is a shift in thinking about debts to assets when changing the framing from self to others.

Finally we ran a sentiment analysis in Matlab, which categorized participants’ subjective statements as positive, negative, or neutral. Overall, people were more negative when discussing debts as compared to assets, $t(1593) = 14.55, p < .001$. Interestingly, we did not find evidence of differences between self and other in either responses about assets (F(1, 380) = .255, $p = .614$) or debts (F(1, 390) = .055, $p = .815$). This suggest that people do not view others more positively or negatively than themselves in this domain. Rather, differences between self and other conditions are likely due to differences in thinking about financial strategies to shrink debt and grow assets.

Discussion

Together these findings help explain why people's future predictions of their own situation differ from those of others. In thinking about the future, people tend to focus on strategies to improve their financial situation by reducing their debt. In considering what others' approaches might be, plans to reduce debt do not feature as prominently.

In all cases, it is interesting that people home in on relatively simple strategies — paying down debt and growing assets. There are few mentions of more complex approaches, such as investing in the stock market or other assets, and almost no mention of external influences such as getting a promotion or the effects of compounding interest or fluctuations in the broader economy.

These findings further suggest that people may focus on different columns of the ledger when thinking about their own versus others' finances. This experiment provides further evidence that focusing on one's own hardships drives self-other differences in how wealth is perceived.

Experiment 3

The previous experiment sheds light on people's reasoning for their predictions. In particular, it offers one potential explanation for why the differential focus leads to different predictions when thinking about the self versus others. If debt weighs heavier on the mind for self, people might be more motivated to pay off this debt. In contrast, people may believe others are less motivated to pay off their debt. Experiment 3 probes further into this possibility by replicating the design in Experiment 2 and adding on a dependent measure intended to examine motivation.

Method

Participants

498 participants (244 women, 245 men, 3 transgender, 1 self-identified, and 5 not reported; age: M = 38.8, SD = 13.5; 68.5% white, 8.6% Black, 6.2% Latin American, 6.0% East Asian, 10.6% all others) completed the experiment. Participants were recruited via Prolific

(www.prolific.co) in April 2022 with the intent of having approximately 125 participants per condition, prior to exclusions. The experiment had four between-participant conditions. The sample size was selected to be consistent with the earlier studies and pre-registered on AsPredicted.org (#89700) before any data was collected. Participants were paid $1.25 for completing the experiment that took them approximately 8.1 minutes to complete.

Materials

The stimuli included seven of the eight wealth profiles used for Experiment 2 (four positive net worth and four negative net worth profiles where two of the profiles included small assets and two included large assets). We replaced one of the profiles because the debt amount was under $1,000 (the amount available to allocate across repaying debt and building assets in the experiment scenario). We worried that the tendency for people to want to close debt accounts (e.g., Amar et al., 2011) would bias the results of the motivation measure described below. Tables 5 and 6 in the Supplemental Materials include the list of the profiles.

Procedure

At the start of the experiment, participants were randomly assigned to one of four conditions in a 2 (Self; Other) by 2 (Positive; Negative Net Worth), between-participants design. As in Experiment 2, participants were told that they would be shown a financial profile — either another individual's or, hypothetically, their own — and that their task would be to predict what the financial situation would look like in one year. They were told that they would be asked to provide an estimate for both future assets and future debt. In the "other" condition, participants were told that they would see a different individual in each trial. Once participants read the instructions, they were asked to complete a guided practice. As part of the guided practice, participants were instructed to type in numbers into the text boxes provided. This was done to ensure participants knew not to include dollar figures or special characters and that all responses should be in terms of absolute value, so that no negative symbols were needed for debts. Upon completing the guided practice, participants were each presented with four profiles in random

order. Altogether, each participant reviewed two small-asset profiles and two large-asset profiles. For example, a participant might have been asked to "Imagine that [you have / Mr. G has] $2,500 in assets and $1,300 in debt." For each profile, participants were then asked to predict how much they (or this other person) would have in assets and in debt in one year; specifically, "In 1 year, what do you estimate [your / Mr. G's] assets will be?" and "In 1 year, what do you estimate [your / Mr. G's] debt will be?" Respondents were free to write in any numeric value between 0 and 4,000,000 for assets and between 0 and 400,000 for debts. The upper bounds for the text boxes were set based on the .99 quantile of the PSID data. In the "other" condition, the names of the individuals were different on each trial and followed the format "Mr. G" where "G" was a single letter and the referenced gender ("Mr." or "Ms.) was balanced across profiles.

New to this experiment was a measure of motivation. Once participants made their predictions, they were presented with a short scenario: "Imagine [you / Mr. G] received $1,000 through a bank promotion, which can be used to pay down debt, deposited as savings, or both. Assuming [you / Mr. G] had [$1,300] in debt and [$2,500] in assets, how much of the $1,000 [would you use / do you believe they would use] to pay down their debt versus grow their assets (i.e., deposit into savings or checking)?" Participants were provided two boxes to input their responses, any numeric value between $0 and $1000, such that the total summed to $1,000. Participants responded to this question for each profile. While there are other ways to use money (e.g., spend it, invest it, donate it, etc.; see Arkes et al., 1994; Li et al., 2019; Shapiro & Slemrod, 2003a), we were primarily interested in the difference in proportion allocated to debt between self and others. Indeed, in past research, when offered the option to use a windfall to repay debt, nearly half of respondents in America selected it (e.g., Asebedo et al., 2020; Shapiro & Slemrod, 2003b, 2009). The hypothetical bank promotion was designed to offer a plausible restriction to either grow one's assets or pay off one's debt.

As in Experiments 1 and 2, once participants had responded to each of the four profiles, they were asked to report on their actual financial situation and demographics. Specifically, participants were asked to estimate their net worth, whether or not they discuss personal finances

with family and friends, the value of their car (if they owned one), how much money they believed they could come up with in case of an emergency, and which zip code they resided in. These questions were excluded from the analysis below.

Results

Per our pre-registration, we excluded 74 participants who failed the attention check in the survey and an additional 21 participants who had four or more outlier responses. The outlier exclusion criteria was again three scaled median absolute deviations from the median response, calculated for each profile, separately for Positive and Negative Net Worth conditions, after excluding participants who failed the attention check. 403 participants remained for the pre-registered analysis. A parallel analysis without exclusions and one with exclusions but controlling for failing the attention check or having four or more outliers produces consistent results.

Similar to Experiments 1 and 2, we started by examining whether participants' predictions were larger or smaller than the stated present values. For assets in positive net worth profiles, participants' predictions were smaller than present values for self ($Z = -4.85$, $p < .001$) but larger than present values for other ($Z = 11.77$, $p < .001$). In the negative net worth conditions, assets were predicted to be larger than present values for both self ($Z = 10.33$, $p < .001$) and other ($Z = 8.71$, $p < .001$). In contrast, debt was predicted to be lower in the future than it was today for self in the positive net worth condition ($Z = -13.41$, $p < .001$) and in the negative net worth condition ($Z = -9.85$, $p < .001$). However, for other, debt was predicted to shrink less in the positive net worth condition ($Z = -6.10$, $p < .001$) and remain largely unchanged in the negative net worth condition ($Z = .94$, $p = .347$). We note that some of these results differ from those of the earlier studies. We believe this reflects changes in the economic environment in 2022, such as predictions of an impending recession.[6]

[6] A look at the front page of the New York Times and the Wall Street Journal highlights a very different economic climate between experiments. In April 2022, Americans were concerned about the invasion of Ukraine and surging inflation rates and the Dow Jones was down 5% from the start of the year. Looking back at March 2019, Americans were reading headlines about trade and foreign policy and the Trump Administration; Dow Jones was up 9% since

Next, we calculated the growth rate for assets and debts for each profile separately and fit two robust linear mixed-effects models to the growth rates with three fixed effects: self-other (reference level = "self"), asset amount (in dollars), and debt amount (in dollars). As before, we allowed for by-subject random intercepts. Robust regression was performed in R using the "robustlmm" package (Koller, 2016, 2021).

Results from the two regressions are shown in Table 4. Here we see weak evidence for self-other difference ($b_{Other} = -.039$, $t = -1.78$, $p = 0.076$) for asset growth rates, where people believe assets will grow less for others.[7] The evidence for self-other difference was stronger for debt growth rates ($b_{Other} = .115$, t = 6.44, $p < .001$). Participants in the "self" condition predicted debts would shrink faster than participants in the "other" condition, replicating Experiments 1 and 2.

To test whether motivation to repay debt differed between Self and Other conditions, we asked participants to imagine receiving a windfall of $1,000 that could be used to grow one's assets or repay outstanding debt. We then estimated a linear mixed-effects model, regressing the fraction (out of $1,000) allocated towards repaying outstanding debt on three predictors: self-other (reference level = 'self'), asset amount (in dollars), and debt amount (in dollars). Like the models above, we allowed for by-subject random intercepts.

The amount allocated towards repaying debt differed significantly between participants who were asked to consider the self versus someone else ($b_{Other} = -.176$, t = -6.99, p $< .001$, 95% CI [$-.23$, $-.13$]). When thinking of one's own wealth, participants allocated more of the windfall towards their outstanding debt balance (see Table 5). This effect is illustrated in Figure 3.

We ran a set of exploratory analyses to examine whether the motivation to repay debt mediated the relationship between thinking about the self (versus other) and predicted growth

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the start of the year.

[7] These results may appear to contradict the z-statistics reported above; further exploration into the data, however, suggests the inconsistency is driven by the aggregation of responses across within-participant conditions, Large and Small profiles. For those in the Self x Positive Net Worth condition, future predictions are larger than present value for Small Profiles ($M_{Diff} = 2,785$, Z = 7.25, $p < .001$) but smaller than present value for Large Profiles ($M_{Diff} = -20,552$, Z = $-.44$, $p = .663$)

Table 4
Exp 3: Coefficients of robust linear mixed effects regression models of asset and debt growth rates

	Dependent variable:	
	Asset Growth Rate	Debt Growth Rate
	(1)	(2)
Constant	$.242^{***}$	$-.203^{***}$
	p = .000	p = .000
Other Condition	$-.039$	$.115^{***}$
	p = .076	p = .000
Assets	$-.00026^{***}$	$-.00002$
	p = .000	p = .434
Debt	$-.0011^{***}$	$.00106^{***}$
	p = .000	p = .000
Observations	1,612	1,612
R^2 Marginal	.052	.091
R^2 Conditional	.329	.613
Note:	*p<.05; **p<.01; ***p<.001	

rates. We used the proportion of the windfall allocated towards debt as the measure of motivation, consistent with the earlier analysis. As reported above, there was a significant relationship between thinking about the self (vs. another person) and motivation to repay debt ($p < .001$). We estimated the mediating effects for Asset Growth Rates and Debt Growth Rates separately (using the "lavaan" package in R, see Rosseel, 2012).

For Asset Growth Rates, we observe weak evidence of a total effect between self-other condition and predicted growth rate ($b = -.408$, Z = -1.90, $p = .058$). However, we do not observe evidence of a relationship between motivation to repay debt and predicted growth rate ($b = -.142$, Z = $-.456$, $p = .649$) nor do we find evidence of an indirect effect $(-.176)(-.142)$ = .025, Z = .46, $p = .649$.

For Debt Growth Rates, the total effect between self-other condition and predicted growth rate was significant ($b = .151$, Z = 4.86, $p < .001$) as was the relationship between motivation to

Table 5

Experiment 3: Coefficients of linear mixed effects regression models of asset and debt growth rates with by-subject random intercepts

	Dependent variable:
	Prop Allocated to Debt
Constant	$.70^{***}$ p = 0.00 (.66, .74)
Other Condition	$-.18^{***}$ p = 0.00 (−.23, −.13)
Present Assets	0.0000 p = .98 (−.0001, .0001)
Present Debt	.0002 p = .33 (−.0002, .001)
Observations	1,612
Log Likelihood	−457.24
Note:	*p<.05; **p<.01; ***p<.001

repay debt and predicted growth rate ($b = -.121$, Z = −2.69, $p = .007$). In addition, we find evidence of an indirect effect of motivation on predicted growth rate (−.176)(−.121) = .021, Z = 2.61, $p = .009$. These findings are consistent with motivation as a mediator of the relationship between self-other and predicted debt growth rates.

Discussion

Studies 1-3 provide evidence that people think about wealth differently for themselves versus others. While people uniformly tended to predict that financial conditions would improve, they reported noticeably different strategies when thinking of themselves compared to others. Participants' strategies tended to focus more on repaying debt. In practice, these differences might arise from asymmetrical information, divergent attention, or motivational processes that

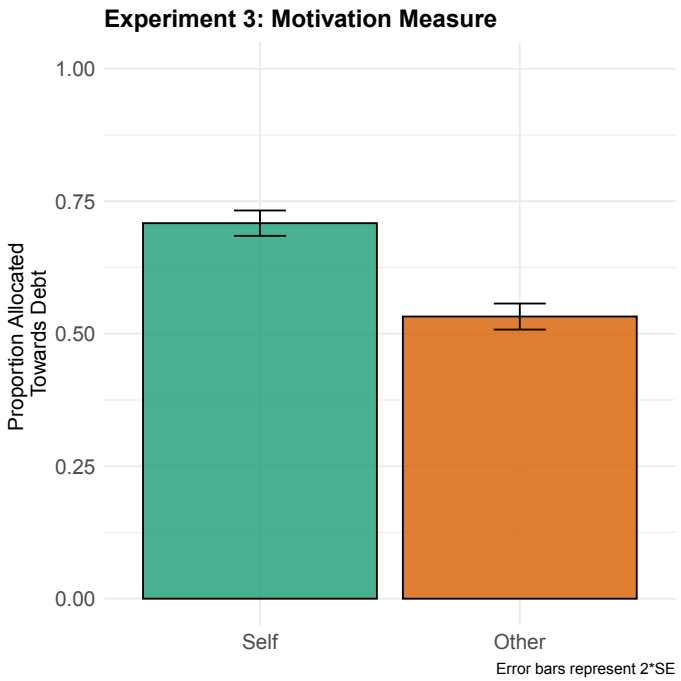

Figure 3

Experiment 3 results: For each profile participants were asked to imagine themselves or [Mr. G] receiving $1,000 before being asked how much would be allocated towards repaying outstanding debt versus growing assets (i.e. deposit into savings or checking). The bar graph displays the proportion allocated towards debt, split by Self versus Other.

vary when thinking of the self versus others. Across studies, participants have full information by design.

In this study, however, we focus on whether people might be more motivated to repay their debt than they believe others are. Whereas Experiment 2 looked at what people said they would do, Experiment 3 illustrated what participants would choose to do. Participants allocated more funds towards repaying debt than they believed others would. Notably, this difference may play a mediating role in beliefs about the future, especially when it comes to changes in debt.

The three studies presented so far examined perceptions of wealth over time. Yet, it is possible that these differences shape perceptions not only of future wealth but also of wealth today. In the next set of studies, we vary present-day levels of wealth by manipulating the price of a large and conspicuous product purchase (a new home) and how much of that cost was financed using debt. If debt weighs more heavily for the self than it does on perceptions of others, then we

expect perceptions of others to remain relatively stable as debt levels increase compared to perceptions of the self at the same product price and relative level of debt.

Experiment 4

Experiments 1, 2, and 3 documented that debt appears to be front-and-center in many people's minds, particularly when thinking about one's own finances. In the remainder of this paper, we explore consequences of this difference in focus. Experiment 4 studies the role of debt in perceptions of wealth directly by asking participants to imagine a recent purchase. If an individual focuses more on debt, the proportion of debt relative to the price of the product should play an out-sized role in how wealthy an individual is seen to be. Given the earlier findings, we expected this effect to be more pronounced when thinking about one's own finances. In other words, how wealthy a person feels will have more to do with the relative amount of debt they hold than the size of the asset they have acquired. Yet when looking towards another person, debt will play a smaller role. That is, in contrast with the self, when others spend more, they will be seen as wealthier (even at similar proportions of borrowing, i.e., more debt in absolute terms). This consistent focus on debt could lead to distinct patterns in which participants expect to pay down their own debt faster (vs. another person), which could lead to better financial outcomes in the future (as in Experiments 1-3), but they also see themselves as less wealthy than another when they have more debt in the present.

In Experiment 4, participants were asked to imagine a recent purchase of a house. Houses are relatively visible products that make up a large expenditure in most households (Heffetz, 2011). They also tend to be products that require borrowing to acquire; among American households, over 40% possess a mortgage (Bricker et al., 2017).

It is important to note that the studies presented here are likely conservative tests for what we might expect outside of a controlled experiment since participants in all conditions were provided with complete information. In practice, others' debt is rarely observed, which would suggest a larger effect in the predicted direction. Nevertheless, here we are interested in

examining the differential focus when the same information is available for self and others.

Method

Participants

405 participants (144 women, 261 men; age: M = 37.5, SD = 11.5) completed the experiment, which was approved by the Institutional Review Board at a Midwestern University. Participants were recruited from Amazon's Mechanical Turk using the CloudResearch platform in February 2020. The sample size was selected to be consistent with the earlier studies, approximately 100 participants per between-participant condition. The sample size was determined prior to starting recruitment. Participants were paid $1.00 for completing the experiment; average completion time was 7.0 minutes.

Materials

The stimuli consisted of 40 wealth profiles, made up of a home price and the current outstanding balance of the mortgage (see Supplemental Materials for a list of the profiles). Home price was either relatively High or Low. The value of the High-Priced houses were drawn from a uniform distribution of values between $1.1 million and $1.3 million and rounded to the nearest thousand. These were drawn once and then fixed for every participant in that condition. The same was done for the values used in the Low-Priced condition, only the distribution ranged from $160,000 to $240,000.[8] The outstanding mortgage balance ranged from 0% to 95% in increments of five percentage points and was displayed to participants in dollars.

Procedure

Participants were randomly assigned to one of four conditions in a 2 (Self; Other) by 2 (Low-Price; High-Price) between-participant design. After agreeing to participate in the experiment, participants were informed that they would be reading "about an individual who has

[8] Note that while the "High-Priced" homes were considerably high, the "Low-Priced" homes represented prices close to the median house price in the U.S. at the time of this study.

recently purchased a new home" or asked to "imagine that you have recently purchased a new home". For each profile, participants in the Other condition were asked to "estimate how well-off financially this person is" and were told that each profile belonged to a different person. Participants in the Self condition were, instead, asked to "decide how financially well-off you feel."[9] Each participant then saw 20 randomized wealth profiles for either the Low-Price or High-Price condition. For each profile, participants were either asked "How well-off do you feel financially?" or "How well off do you think [Mr. X] is financially?". Response options spanned five points, from "Not at all well-off" to "Extremely well-off". In the "other" condition, the names of the individuals were different on each trial and followed the format “Mr. G" where the referenced gender was always "Mr." and “G" was always a single letter.

As in Experiment 1, participants were asked to report on their actual financial situation and about their demographics before finishing the survey. In particular, participants were asked how wealthy they felt, their own net worth, how expensive they perceived a $200,000 house and $1 million house to be, whether they owned a home, how much money they believed they could come up with in case of an emergency, and a set of questions assessing financial literacy (Lusardi & Mitchell, 2008) and their propensity to take on risk in the domains of gains and losses.

Results

No participants were excluded in this analysis.[10] To assess the role of price versus debt and self-other differences we estimated an ordinary least squares regression. We treated the scaled response as a continuous variable and regress it on an indicator variable for whether the participant was in the High-Price condition (i.e., reference level = Low-Price), another for whether they were in the Other condition (i.e., reference level = Self), and an interaction term for the two. The regression also adjusts for debt by including a continuous variable ranging from zero to 95

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[9] We recognize the question wording was inconsistent between conditions; Experiment 6 aligns the language and replicates the main effect.

[10] Unlike Experiments 1-3, participants in Experiment 4 responded on a 5 point scale (not a text box). Thus, the data were much cleaner and removal of outliers was not needed.

based on the amount borrowed as a percent of the total price. There were no by-subject random intercepts. Table 6 provides the full model specification along with the estimated coefficients.

Overall, others were seen as wealthier ($b_{Other} = .22, p < .001$, 95% CI [.15, .29]). Profiles with higher-priced homes, as one would expect, were also seen as better off ($b_{HighPrice} = 0.29, p < .001$, 95% CI [.22, .36]), but this effect appeared larger for when evaluating Others (relative to Self), $b_{Other*HighPrice} = 0.20, < .001$, 95% CI [0.10, 0.30]. Figure 4 illustrates these results. These effects also hold when we run the same regression predicting the rank of the response.

Discussion

The effect of price on perceptions of wealth was greater when evaluating others' wealth and had a smaller impact on how wealthy a person saw themselves, adjusting for the relative amount of debt. Although appearing somewhat contradictory with findings from Experiments 1-3 in which a focus on debt corresponded to beliefs about greater wealth in the future, we propose that the two sets of results are in fact consistent and in support of Hypothesis 1b (i.e., focus on hardships). If people tend to focus more on debt when thinking of their own financial status, we should expect a larger difference in perceptions of wealth for self versus others as price increases. Holding the proportion of debt constant, more expensive homes come with larger liabilities.

Nevertheless, homes are unique on a few dimensions. Home buying involves an arduous process of demonstrating a person can be trusted to pay down their mortgage. Furthermore, buying a home is often seen as an investment, and mortgages are commonly seen as a form of "good debt" (Greenberg & Mogilner, 2021; Peñaloza & Barnhart, 2011). This suggests one limitation of the study, namely that relatively large mortgages, especially for million-dollar homes, might in-and-of-itself be a signal that one earns well, has plenty of money saved up, or is financially savvy. After all, not everyone can afford a million dollar mortgage and relatively few people would even qualify for one. To address this, the next study serves as a conceptual replication with a product (i.e., a car) that can also serve as a conspicuous proxy for wealth,

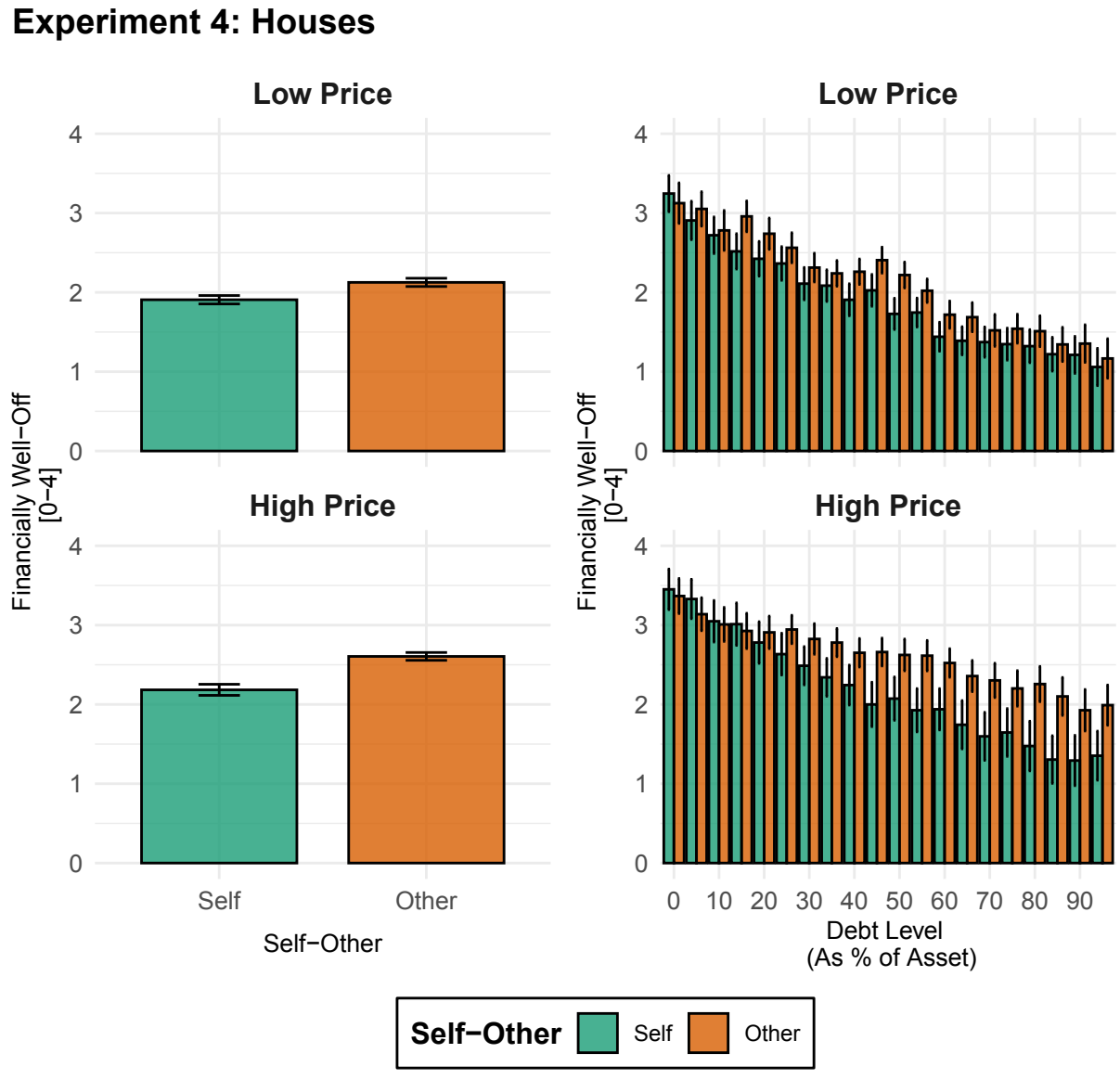

Figure 4

Experiment 4 results: Perceptions of wealth between self and others for Low-Priced and High-Priced homes. The panels on the left collapse responses across debt levels. The panels on the right show the results separately for each debt level. The scale consisted of five points, ranging from "Not well-off at all" to "Extremely well-off". Error bars are equivalent to two standard errors from the mean.

typically requires some amount of borrowing, and, yet, is relatively more attainable.

Experiment 5

Having shown a difference in perceptions between self and other in the domain of mortgages, we modified the design to examine the effect for another product. Experiment 5 explored perceptions of wealth when informed of a recent car purchase. A similar pattern of results for car purchases would suggest the results in Experiment 4 are not specific to home purchases but, in fact, extend to another highly conspicuous product category at a much lower price-point than a home.

Method

Participants

In January 2021, 401 participants (193 women, 205 men, 2 Self-Identified, and 1 not reported; age: M = 39.2, SD = 12.1; 73% white, 7% Latin American, 7% Black, 6% East Asian) were recruited through CloudResearch's (Litman et al., 2017) "Approved Participants" list. The sample size was selected to be approximately the same as earlier studies, 100 participants per condition across four between-participant conditions. The sample size was determined prior to starting the experiment and pre-registered on AsPredicted.org (#55513).[11] Participants were paid $1.20 for completing the experiment which took, on average, 6.4 minutes to complete.

Materials

The stimuli consisted of 40 financial profiles, made up of a car price and the current outstanding loan balance (see Supplemental Materials for a list of the profiles). The value of the High-Priced cars were drawn from a uniform distribution of values between $57,999 and $59,999

[11] While Experiment 5 was pre-registered, the hypothesis tested here was not. Experiment 6 serves as a replication, where the current hypothesis was pre-registered.

and rounded to the nearest dollar.[12] The same was done for the values used in the Low-Priced condition, where the range spanned $17,999 and $19,999. These values were drawn once and then fixed for every participant in that condition. The outstanding loan balance ranged from 0% to 95% in increments of five percentage points; participants would then see the corresponding dollar amount.

Procedure

Similar to Experiment 4, participants were randomly assigned to one of four between-participant conditions in a 2 (Self; Other) by 2 (Low-Price; High-Price) design. Participants were told to imagine themselves or another person owing some amount in car loans; each participant saw 20 profiles presented in a random order. For each profile, participants were either asked "How well-off do you feel financially?" or "How well off do you think [Mr. X] is financially?", depending on their condition. Like Experiment 3, the referenced gender was balanced across profiles. Response were on a five point scale from "Not at all well-off" to "Extremely well-off".

Prior to completing the study, participants were asked about their own financial situation as well as their demographics. Specifically, participants were asked to estimate their own net worth, whether or not they discuss personal finances with family and friends, the value of their car (if they owned one), how much money they believed they could come up with in case of an emergency, and which zip code they resided in. These measures, however, were not used in the analysis reported here.

Results

In replicating the analysis from Experiment 4, we estimated an ordinary least squares regression. We regressed perceptions of wealth on indicators for price (reference level =

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[12] The range of High-Priced values were meant to approximate the 90th percentile of car prices listed on Kelley Blue Book (kbb.com. Low-Priced values were drawn from the 25th percentile. To avoid any left-digit bias, we rounded the value down where rounding to nearest thousand would have changed the left-most digit.

Low-Price) and self-other (reference level = Self) conditions, their interaction, and control for the proportion of debt of each profile. Table 6 provides the full model specification along with the estimated coefficients.

After adjusting for relative debt, others were generally seen as wealthier ($b_{Other} = .24, p < .001$, 95% CI [.18, .30]); and even more so when they were said to have purchased an expensive car, $b_{Other*HighPrice} = .34, p < .001$, 95% CI [.25, .44]. Yet, unlike in Experiment 4, we found no difference between the Low-Priced and High-Priced conditions when participants were asked to think of their own situation, $b_{HighPrice} = -.01, p = .75$, 95% CI [-.08, .05]. One possibility is that this is due to the type of product used in this experiment. For example, Greenberg and Mogilner (2021), find that different types of debt are associated with different levels of life satisfaction and this may offer one explanation for the different findings. Figure 5 illustrates the results of this experiment. These effects remain statistically meaningful when we run the same regression predicting the rank of the response.

Discussion

Experiments 4 and 5 explored whether a differential focus led people to perceive wealth differently for themselves versus others in the present and as a function of conspicuous purchases rather than overall wealth. We estimated people's sensitivity to asset prices as a signal of wealth. By varying the value of the asset as well the percentage of debt, we found that, for others, more expensive assets are a sign of financial wellness. However, when considering one's own financial status, the product price plays a less significant role after adjusting for the relative amount of debt. This effect suggests that the amount owed plays a role in determining one's self-image. Experiment 6 explores whether people evaluate wealth differently when thinking of their self-image versus their social image.

Experiment 6

In Experiments 4 and 5, we found that the price paid for the car or the house had little effect on how wealthy one felt, what mattered was the level of debt. In contrast, when thinking

Table 6
Coefficients of OLS regression model for Experiments 4 (Houses) and 5 (Cars)

	Dependent variable: Financially Well-Off	
	Houses	Cars
	(1)	(2)
Constant	2.80***	2.49***
	p = 0.00	p = 0.00
	(2.74, 2.86)	(2.43, 2.55)
Other Condition	.22***	.24***
	p = 0.00	p = 0.00
	(.15, .29)	(.18, .30)
High Price Condition	.29***	−.01
	p = 0.00	p = .75
	(.22, .36)	(−.08, .05)
Debt (as percentage of asset)	−.02***	−.02***
	p = 0.00	p = 0.00
	(−.02, −.02)	(−.02, −.02)
Other x High Price	.20***	.34***
	p = .0001	p = 0.00
	(.10, .30)	(.25, .44)
Observations	8,243	8,000
R^2	.23	.27
Adjusted R^2	.23	.27
Residual Std. Error	1.12	1.05
F Statistic	614.28***	725.40***
Note:		*p<0.05; **p<0.01; ***p<0.001

Figure 5

Experiment 5 results: Perceptions of wealth between self and others for Low-Priced and High-Priced cars. The panels on the left collapse responses across debt levels. The panels of the right show responses across all debt levels. The scale consisted of five points, ranging from "Not well-off at all" to "Extremely well-off". Error bars are equivalent to two standard errors from the mean.

about others, both the price of the product and the level of debt were important such that those with more expensive goods were seen as wealthier, even when they held more dollars in debt.

Experiment 6 extended the paradigm used in Experiments 4 and 5 to examine second-order beliefs; that is, beliefs of others' beliefs. People care about how they are perceived by those around them and this can affect spending behavior (Bursztyn & Jensen, 2017; Ordabayeva et al., 2021). Importantly, absent explicit feedback from others', individuals are left to infer others' perceptions when making everyday decisions.

We sought to understand whether participants would correctly infer the gap in perceptions found in the earlier studies, or would instead believe that others' saw them as they saw themselves. To study this, Experiment 6 replicated Experiments 4 and 5 while adding on another set of "social image" conditions which asked participants how they imagine "others would see them" (holding constant the assets and debt across conditions).

A social image that resembles one's image of others would suggest that people recognize the gap in perceptions. A social image that differed from self-image would suggest that individuals would have to choose between appearing wealthier (improved social image) while holding more debt (worsened self-image) and appearing poorer (worsened social image) with less debt (improved self-image).

We note that when we conducted Experiments 4 and 5, we uncovered the reported effects through exploratory analyses. Experiment 6 pre-registered the new hypothesis with the aim of replicating the earlier findings.

Method

Participants

In March 2022, 1,501 participants (723 women, 749 men, 6 Transgender, 23 Self-Identify; age: M = 38.2, SD = 14.1; 67.8% white, 9.1% Black, 7.3% Latin American, 5.7% East Asian, 10.1% all others) were recruited through Prolific ((www.prolific.co)). We intended to recruit approximately 250 participants per condition, across six conditions. The sample size per

condition was selected to be able to detect an earlier finding at 80% power (see Supplemental Material for details on the earlier study) and was pre-registered prior to starting recruitment on AsPredicted.org (#88981). Participants were paid $1.00 for completing the study which took approximately 6.8 minutes to complete.

Materials

The stimuli consisted of 40 wealth profiles. The profiles in this study are a subset of those generated for Experiments 4 and 5. Specifically, we draw every other profile starting with 0% owed through 90% owed (e.g., 0%, 10%, 20%... 90%), along with the corresponding price of the asset. Altogether, there were 20 profiles referencing house purchases and 20 referencing car purchases and within each product set, ten profiles reflected High-Priced items and ten Low-Priced items.

Procedure

Experiment 6 borrowed the setup from the previous two experiments. This time, participants were assigned to one of six conditions in a 3 (Self; Other; Social Image) by 2 (Low-Price; High-Price) between-participants design. Instructions for the Self and Other conditions were similar to the previous experiments. For those in the "Social Image" condition, participants were asked to "imagine that you have recently purchased a new home" like in the Self condition; however, the task now involved deciding "How well-off do *others think you feel* financially?" (emphasis added). Participants in this study were shown 20 wealth profiles, spanning both products, first the ten profiles related to one product and then ten related to the other. The product order and the profiles within each product set were randomized between participants. Unlike the earlier studies, there were only 10 wealth profiles per product, where debt levels varied between 0% and 90% in increments of ten percentage points. For each profile, participants were asked about perceptions. In this version, unlike Experiments 4 and 5, all conditions aligned the question wording to ask about "feeling" — self: "How well-off do you feel financially?"; other: "How well-off do you believe [Mr. G] feels financially?" For those in the

Social Image condition they were asked "How well-off do others think you feel financially?" The same five point scale was used. As in Experiments 3 and 5, the referenced gender in the "other" condition was balanced across profiles.

Participants were later asked about their own financial situation as well as their demographics. In particular, participants were asked to estimate their own net worth, whether or not they discuss personal finances with family and friends, the value of their car (if they owned one), how much money they believed they could come up with in case of an emergency, and which zip code they resided in. None of these measures were used in the analysis below and are reported here for transparency (Simmons et al., 2011).

Results

We once again regressed perceptions of wealth on an indicator for the High-Priced condition and for the Other condition, the interaction term between the two, and adjust for the relative amount of debt. To account for the new Social Image condition, we maintain the Self condition as the reference group and estimate the ordinary least squares regression with an additional indicator and an interaction term for Social Image and High-Priced condition assignment.

Again, others were seen as wealthier (House: $b_{Other} = .14, p < .001$, 95% CI [.08, .20]; Car: $b_{Other} = .13, p < .001$, 95% CI [.07, .18]). Participants also perceived those with more expensive houses to be better off financially ($b_{HighPrice} = 0.12, p < .001$, 95% CI [0.05, 0.18]) and this relationship was more pronounced when thinking about others relative to one's self ($b_{Other*HighPrice} = 0.24, p < .001$, 95% CI [0.15, 0.33]). When considering cars, there appears to be no difference between Low- and High-Priced conditions when thinking of the self ($b_{HighPrice} = -.03, p = .38$, 95% CI [$-.08$, .03]), yet there is a significant interaction ($b_{Other*HighPrice} = .19, p < .001$, 95% CI [.11, .27]. These results replicate those of Experiments 4 and 5.

When asked about social image (i.e., how wealthy others would believe you felt),

participants believed others would see them as more well-off than they tended to see themselves when in the Low-Priced condition (Car: $b_{SocialImage} = .04, p = .001$, 95% CI [−.02, .10]; House: $b_{SocialImage} = .10, p < .001$, 95% CI [.04, .16]). Again the effect is more pronounced in the High-Priced condition (Car: $b_{SocialImage*HighPrice} = 0.35, p < .001$, 95% CI [0.27, 0.43]; House: $b_{SocialImage*HighPrice} = 0.49, p < .001$, 95% CI [0.40, 0.58]). Notably, when compared to those in the Other condition, participants imagined others would see them differently to how they saw others, even at similar levels of wealth (Car: $b_{SocialImage} = -.09, p = .004$, 95% CI [−.14, −.03]; House: $b_{SocialImage} = -.04, p = .21$, 95% CI [−.10, .02], see Supplemental Materials table of coefficients). Figures 6 and 7 illustrate the results. Regressing the rank of the response on the same predictors produces consistent responses for both cars and houses.

Discussion

Experiment 6 presents a pre-registered replication of Experiments 4 and 5. It also extends the paradigm to explore the social image people have of themselves; that is, beliefs of how others would, in turn, see them. People believed others would see them as wealthier than they saw themselves, and this gap widened for more expensive items. This gap between one's self-image and their social image could bias people to consume more expensive items to appear wealthier to others. We also see a gap when comparing the Social Image condition to the Other condition. This gap between social image and the image of others is important because, on average, we might expect these to be the same. That is, it is reasonable to believe that people's judgment of others should be equivalent to others' judgments of those people, especially when the information available is identical, as it was in these studies. While this equivalence appears true in the Low-Priced condition for houses, there is a significant difference between the image of others and one's social image for cars and for both products in the High-Priced condition (see Table 18 in the Supplemental Materials). This difference suggests that one's perceptions of their social image are potentially biased, deviating from what we might expect. Understanding these beliefs is particularly important in the context of conspicuous purchases.

Table 7
Coefficients of OLS regression model for Experiment 6

	Dependent variable: Financially Well-Off	
	Houses	Cars
	(1)	(2)
Constant	2.85***	2.79***
	p = 0.000	p = 0.000
	(2.80, 2.90)	(2.74, 2.83)
Other Condition	.14***	.13***
	p = .0000	p = .0001
	(.08, .20)	(.07, .18)
Social Image Condition	.10***	.04
	p = .001	p = .17
	(.04, .16)	(−.02, .10)
High Price Condition	.12***	−.03
	p = .0003	p = .38
	(.05, .18)	(−.08, .03)
Debt (as percentage of asset)	−.02***	−.02***
	p = 0.000	p = 0.000
	(−.02, −.02)	(−.03, −.02)
Other x High Price	.24***	.19***
	p = .0001	p = .000
	(.15, .33)	(.11, .27)
Social Image x High Price	.49***	.35***
	p = 0.000	p = 0.000
	(.40, .58)	(.27, .43)
Observations	15,010	15,010
R^2	.27	.33
Adjusted R^2	.27	.33
Residual Std. Error	1.10	1.02
F Statistic	927.49***	1,239.11***

Note: *p<0.05; **p<0.01; ***p<0.001

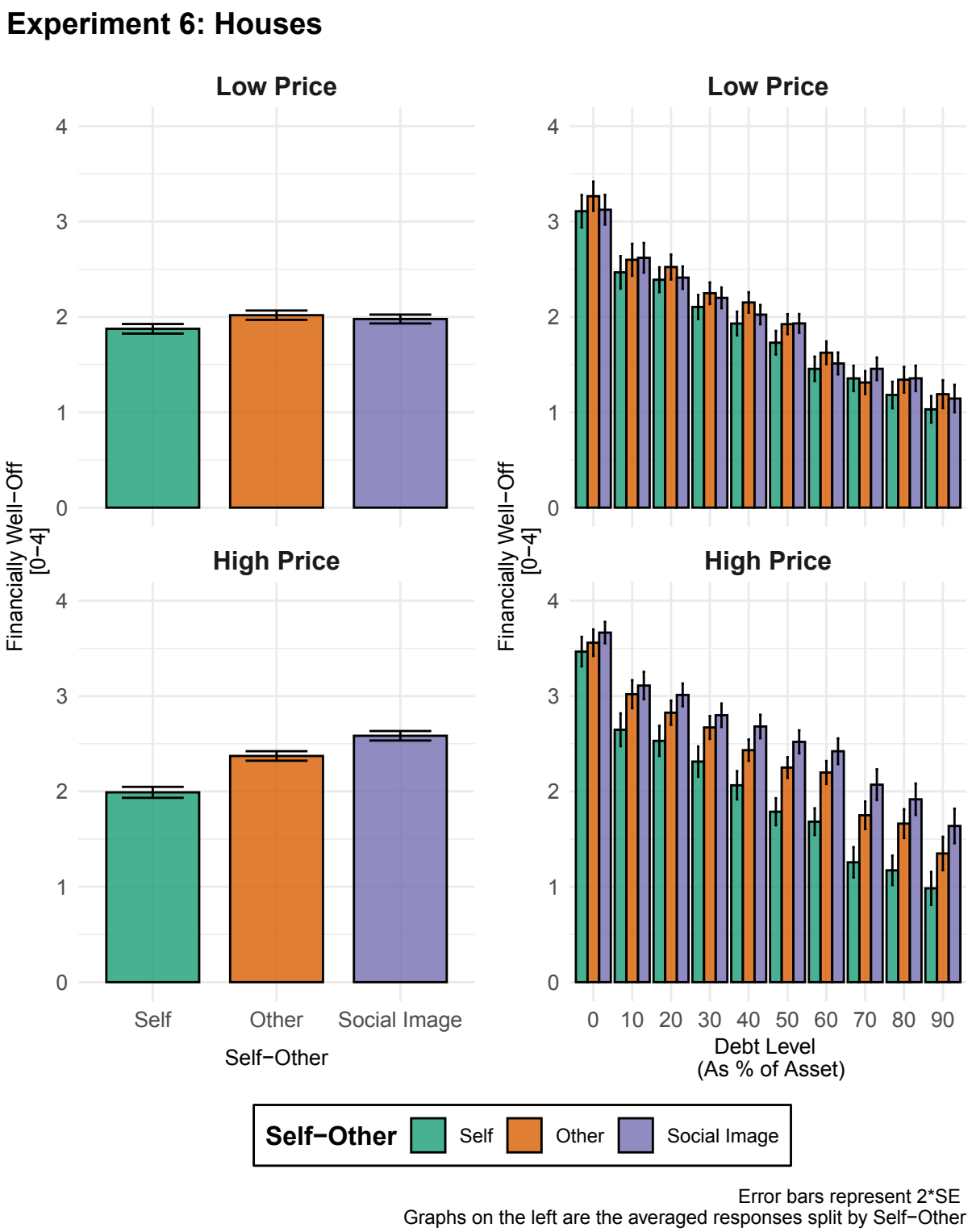

Figure 6

Experiment 6 results for homes: Perceptions of wealth between self, others, and social image for Low-Priced and High-Priced homes. The panels on the left collapse responses across debt levels. The panels on the right show responses across all debt levels. The scale consisted of five points, ranging from "Not well-off at all" to "Extremely well-off". Error bars are equivalent to two standard errors from the mean.

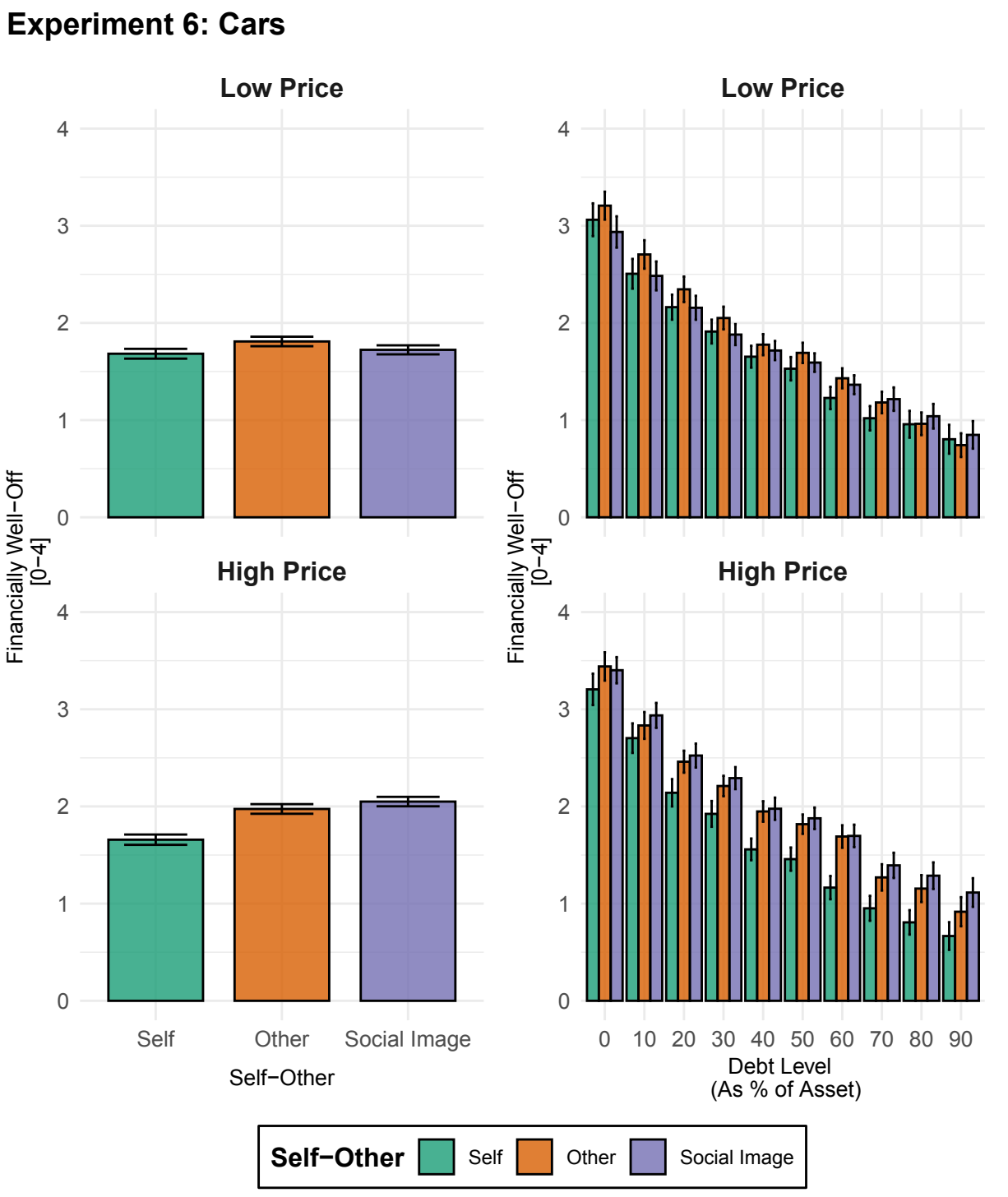

Figure 7

Experiment 6 results for cars: Perceptions of wealth between self, others, and social image for Low Priced and High Priced cars. The panels on the left collapse responses across debt levels. The panels on the right show responses separately for all debt levels. The scale consisted of five points, ranging from "Not well-off at all" to "Extremely well-off". Error bars are equivalent to two standard errors from the mean.

General Discussion

People think about wealth differently for themselves versus others, even when provided with complete information. Specifically, debt appears to weigh more heavily when evaluating one's own financial situation than when assessing someone else's. Consequently, people appear motivated to pay off what they owe while also believing that they are worse than their peers today.

These findings extend the literature on self-other differences. Previous work has documented patterns of differential attention leading to disparities in how people perceive others relative to the self (e.g., Kahneman, 2006; Williams & Gilovich, 2012). These disparities often lead people to evaluate themselves more favorably than others. Yet, some work has shown that people focus more on their own trials and tribulations (e.g., Davidai & Gilovich, 2016). Taken together, research into self-other differences has offered competing predictions, sometimes beliefs about the self are self-enhancing and other times they are self-deprecating. Why then, when it comes to evaluating wealth, do people perceive themselves as worse off than others?

One account, offered by Galesic et al. (2012), suggests that differences arise from the way people sample the world (see also Caruso, 2008; Dawtry et al., 2015; Galesic et al., 2018; Howard et al., 2022). In cases where the population distribution skews right — as is the case for wealth, where most people are doing worse than the mean — people overestimate the relative frequency of wealthier people and underestimate the relative frequency of poorer people, leading them to believe their own position is worse than it actually is (Galesic et al., 2012, p. 1519).

More generally, people tend to have more information about themselves than they do about others (e.g., Kruger et al., 2008; Ross & Sicoly, 1979). This is particularly likely to be true when it comes to household finances, where people have an unbalanced view of assets and debts for themselves versus others. People are constantly being reminded of their own financial obligations and their earnings, while rarely glimpsing that of others. For example, despite a shared understanding of what might be considered "good debt" and "bad debt" (Greenberg & Mogilner, 2021; Peñaloza & Barnhart, 2011), debt is rarely discussed with others, even with one's partner (Addo & Zhang, 2020). Others' debt also tends to go unseen (Georgarakos et al., 2014)

with few exceptions, including bankruptcies or property repossessions, such as home foreclosures and evictions. In contrast, people tend to incur debt far more frequently than they acquire assets in everyday spending (see Section 2 in Stewart et al., 2006); a fact they are reminded of each month upon receiving a statement from their bank.

Still, our work suggests that social sampling and informational disparities do not fully account for how people evaluate their own wealth relative to others. Across all our studies, we control for informational disparities by design. Participants had complete information about the assets and debts of the target individual, whether that be themselves or someone else. Indeed, this suggests the findings presented in the paper are likely conservative relative to what we might expect in practice. While this highlights a limitation of the studies — namely that the scenarios are different from what one might experience in the world — by holding information constant, we can explore other factors that may be at play.

Two other mechanisms are worth considering: attention and motivation. In Experiment 2, we see evidence that paying off debt comes to mind more often when thinking of one's future wealth compared to others' future wealth, suggestive of differential attention. In Experiment 3, we find evidence that people would allocate more money to paying off their own debt than they believe others would, suggestive of differential motivation. Together this suggests that people attend to debt more when thinking of themselves and are more motivated to repay their debts than they believe others are. Although past work has documented a general aversion to debt (e.g., Gal & McShane, 2012; Kettle et al., 2016; Martinez-Marquina & Shi, 2021; Meissner, 2016), it remains unclear whether debt comes to mind because people are motivated to get rid of it or if the motivation stems from attention. Consistent with the literature on goal-directed and stimulus-driven attention, it is likely that they both play a role (Corbetta & Shulman, 2002, e.g.,).

Future directions

In exploring how wealth is perceived when thinking of one's own situation versus another's, this paper attempts to connect work on perceptions of wealth and social interactions.

One area of general interest is in the role of conspicuous consumption and the drive to "keep up with the Jones's." Our findings hint at a potential mechanism fueling this drive.

Previous work has documented that relative wealth affects people's well-being (Anderson et al., 2012; Boyce et al., 2010; Perez-Truglia, 2020) and that people consume in ways to signal that wealth (Charles et al., 2009). Nevertheless, the asymmetry shown here between the self and others points to a pernicious cycle: if people see others as wealthier, they may decide to spend to "keep up", and signal greater wealth, even if that spending comes with more outstanding debt (Georgarakos et al., 2014). Yet, if others also experience this self-other discrepancy, then each person will perceive everyone *else* to be getting wealthier while failing to recognize they are all trending in the same direction: each increasingly burdened by debt. This idea is largely consistent with the findings presented by Ordabayeva and Chandon (2011), which suggests that when social status matters, greater equality can fuel *more* conspicuous consumption. We invite researchers to test this hypothesis in future studies.

The findings from Experiments 4, 5, and 6 appear robust for cars and houses, both durable products that are relatively costly and conspicuous. It is plausible that the effects reported here are limited to a specific set of consumer products. Future research might explore the boundaries of these results, for example, by investigating whether similar patterns emerge in response to less conspicuous, less expensive, or less durable products.

How might these findings be applied in practice? We conjecture that a better understanding of these perceptions of wealth could help reduce excessive conspicuous consumption. The link between perceptions of wealth and conspicuous consumption is consistent with earlier work examining social effects on one's own consumption. For example, Kuhn et al. (2011, p. 2229) use household data from the Dutch Postcode Lottery (PCL) to show that "having an immediate neighbor win [a car through] the PCL raises the probability that a household will buy a car in the next six months by close to 7 percentage points..." Likewise, Georgarakos and colleagues (2014) provide evidence that "perceived peer income contributes to debt and the likelihood of financial distress among those who consider themselves poorer than their peers."

That is, social image concerns lead to increased borrowing. In our attempt to gauge participants' beliefs about beliefs, we find that people have a distorted social image. Participants' social image looked neither like their self-image nor their image of others. People believe others will see them as wealthier than they see themselves, and this effect widens for expensive (relative to inexpensive) products. The core mechanism that leads to this gap is beyond the scope of this paper but the consequences are worth considering. To the extent that people care about their relative standing, beliefs about one's social image might bias individuals towards spending more to keep up appearances, even if that requires additional borrowing. Aligning these beliefs might taper one's motivation to consume beyond their means. Future work should examine why these disparities arise. And, when one's belief about their social image differs from others' actual perceptions, what effect does it have on their behavior?

This paper focuses specifically on perceptions of wealth. Still, the basic psychology here may extend to other domains beyond personal finance. For example, graduate students may find themselves consistently behind their peers — others' success tends to be visible, whereas obstacles are not. As discussed above, others have discussed related psychology in the past. What perhaps is new is the cognitive weight of everyday challenges. It is plausible that people tend to underestimate how motivated others — who are obese or unemployed or in need of childcare — actually are to lose weight, find a job, or hire a nanny (see Vallone et al., 1990). On the other hand, perceptions of wealth may be unique in that consumption tends to be a conspicuous signal of wealth and, by extension, social status; yet, debt often goes unseen. Broader research exploring the motivation of self versus others could help extend the current insights into other domains.

Conclusions

When assessing wealth, people weigh their own debt more than they do the debt of others. This difference influences both how people plan for the future and how they perceive consumption today. When thinking about the future, people expect they will pay down their debt faster, in part because they believe they are more motivated to reduce debt than their peers.

However, by focusing on debt for themselves, people judge themselves feel less well-off than they believe others are after large purchases. This asymmetry points to an insidious cycle, whereby simply "keeping up" with the Jones's could leave people feeling perpetually behind. To the extent people are motivated by social status, a distorted view of wealth will go on to shape people's decisions to borrow and spend.

Open Practice

Our study materials, data, and code can be found on the Open Science Framework as well as a pre-registration document for Experiments 3 and 6. osf.io/3q8tn

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